

longer papers are being printed in the *Memorie* or "Transactions," and the corresponding societies with which an exchange of publications is made now number not less than 500. Under the title of *Notizie degli Scavi*, the society brings out accounts of archaeological discoveries in Italy, the material for which is furnished monthly by the Minister of Public Instruction. Of recent publications, we note the issue of three volumes of the "Codex Atlanticus" of Leonardo da Vinci, a magnificent work, in the cost of publishing which the late King gave material assistance; also the "Forma Urbis Romæ" of Signor Lanciani, consisting of a large scale archaeological map of Rome.

For the Royal prize of 1000 francs for normal and pathological physiology six candidates entered, and a large number of essays of considerable merit were submitted by them. The prize has been adjudged to Prof. Giulio Fano, of Florence, for sixteen papers, dealing, amongst other subjects, with the physiology of the embryonic heart, the doctrine of experimental psychology, the organ of hearing, the graphic registration of respiratory chimism and reflex movements, the latter being a continuation of previous researches on the organs of *Emys Europea*. Of the six candidates for the Royal prize for geology and mineralogy, two were considered worthy of the award, which was therefore divided equally between them. One of the successful candidates, Prof. De Lorenzo, chose geological subjects, and sent in about twenty essays, the most important of which dealt with the trias of the environs of Lagonegro, the mesozoic mountains of Lagonegro, geological observations on the Apennines of the southern Basilicate, and geological studies of the southern Apennines. Prof. Giorgio Spezia's work, on the other hand, was entirely mineralogical, dealing with the influences of temperature and pressure, respectively, on the chemical metamorphism of rocks and minerals. From a long and laborious series of experiments, many of them occupying five or six months, the author concluded that pressure has little or no effect, while the influence of temperature is considerable. The results have a special bearing on the theory of quartz formation. The Royal prize for advances in archaeological science was adjudged to Dr. Paolo Orsi, of Roveredo, for his investigations of the antiquities of Eastern Sicily. Dr. Orsi has thrown quite a new light on the prehistoric development of the people known as the Siculi, from the neolithic epoch down to the period of expansion of the Greek colonies. A special prize for philosophy and moral science had been offered for an essay dealing with either the theory of consciousness or the foundations of practical philosophy. This prize has been divided equally between Prof. Bernardino Varisco and Prof. Francesco de Sarlo. The Minister of Public Instruction offered a sum of 3400 lire for two prizes in physical and chemical sciences, and a like sum for two prizes in philological sciences, the prizes being confined to teachers in secondary schools. The committee for the prizes in physical and chemical sciences have awarded two equal prizes—one to Prof. O. Marco Corbino, more especially for his work on light traversing metallic vapours in a magnetic field, and the other to be divided between Profs. Carlo Bonacini and Riccardo Malagoli, more especially for their joint papers on Röntgen rays. In philology, the prizes have been divided up into a number of minor awards, distributed between Signori Giuseppe Vandelli (whose work stood first), Antonio Belloni, Astorre Pellegrini, Giuseppe Rua, Giuseppe Lisio, Augusto Balsano, Giovanni Negri and Guglielmo Volpi.

At the conclusion of the awards a biographical commemoration of the late Prof. Beltrami was delivered by Prof. Luigi Cremona. In the number of the *Atti*, this is followed by a chronological list of Beltrami's scientific works, in compiling which use has been made of the previously published lists by Prof. Dini, and by Signori Pinti and Brambilla in the *Annali di Matematica* and the *Rendiconto* of the Naples Academy respectively.

The proceedings terminated with an address by Signor Giuseppe Colombo on the progress of electrotechnics in Italy. Signor Colombo briefly traced the gradual development of the theory of the electrical transmission of energy, from the discovery of Volta, through the various stages indicated by Pacinotti's invention of the first dynamo, Galileo Ferraris' principle of the rotating magnetic field, and a number of intermediate inventions, down to the principle of wireless telegraphy, to the development of which two Italians, Righi and Marconi, have so largely contributed. The absence of coal has long been a serious bar to the progress of Italy in commercial competition, but Signor Colombo proves by statistics that Nature has provided a source

of energy more than sufficient to fill the deficiency, in the water-power with which the country has been well endowed, and it only needs the development of plant for the electrical transmission of power, aided, moreover, by the best means for minimising waste of energy, to raise Italy to a condition of commercial prosperity.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

THE *Pall Mall Gazette* states that Miss Cruickshank has given to Aberdeen University, in memory of her brother, Dr. Alexander Cruickshank, the botanic garden at Chanoury, Old Aberdeen, extending to six acres, and capable of accommodating nearly six thousand specimens. Miss Cruickshank has devoted to its endowment the sum of 15,000*l.*

MR. GILBERT R. REDGRAVE, Senior Chief Inspector in the South Kensington branch of the Board of Education, has been appointed an Assistant Secretary for Technology. Announcement is made that in the ensuing autumn the Duke of Devonshire will appoint a departmental committee, on which the county councils and the City and Guilds of London Institute will be represented, to consider, *inter alia*, the co-ordination of the technological administration of the Board of Education with the technological work at present carried on by educational bodies other than that Board.

A GOOD idea of the scope and value of the work of the examinations department of the City and Guilds of London Institute can be obtained from the "Programme of Technological Examinations (1900-1901)," published by Messrs. Whittaker and Co. Examinations are held in seventy technological subjects, and also in manual training (wood-work and metal-work). For each examination a syllabus is given, and a useful list of works of references; and the questions and practical exercises set at the recent examinations are all reprinted. Several of the syllabuses have been revised, notably those of photography, pottery and porcelain, silk throwing and spinning, and silk weaving, electric lighting, watch and clock making, typography, lithography, carpentry and joinery.

THE Redruth School of Mines, of which the syllabus for 1900-1901 is before us, offers exceptional facilities for studying the principles of mining in the Cornish mining district. One wing of the school building is occupied by a large mineral gallery, erected to the memory of the late Dr. Robert Hunt, F.R.S. The museum, which contains a valuable collection of mineral specimens, and is the property of the Mining Association and Institute of Cornwall, is at all times accessible to students of the school. The mining course consists of practical underground work, including the timbering of shafts and levels, and of lectures on geology, the principles of mining, the raising and mechanical preparation of ores, and of practical work in gold panning and vanning. Students, in addition, are taught the methods of prospecting for minerals in all possible positions, and are trained to detect favourable indications on the surface. There is thus a reasonable combination of science with practice in subjects essential to the training of mining engineers.

WHAT school gardens are to children, allotments are to adults in agricultural districts, and both provide valuable means of experiment. The Report of the Technical Instruction Committee of the Oxfordshire County Council shows that this is well recognised in several parts of the county. For instance, at the Chipping Norton Agricultural Class there were fifty-four students of an average age of thirty-eight. They were factory hands, labourers, mechanics and small tradesmen, who all cultivated allotments, and were thus able to put principles to a practical test, and determine the causes thus affecting growth. At Reading College, which is connected with the Oxfordshire Committee, various insects and plants were received from different parts of the county for identification, and advice was given in many localities. Field experiments were made on sainfoin and lucerne, rotation, "finger and toe," mangel, and different manures for barley. Charlock spraying was investigated at three farms, and other experimental work had been done under the auspices of the College and the Technical Education Committee.